

REMARKS

Pursuant to 37 C.F.R. § 1.111, reconsideration of the claim rejections of the Office Action dated September 7, 2006 is respectfully requested by Applicant.

Summary

Claims 16-19 and 27-30 were rejected.

Claim Rejections

Claims 16 – 19 and 27 - 31 were rejected pursuant to 35 U.S.C. § 103(a) as being unpatentable over either Lemelson (U.S. Patent No. 3,154,890) or Schulze (U.S. Patent No. 2,873,391) in view of either Baird (U.S. Patent No. 4,183,007) or Eppes (U.S. Patent No. 4,764,021).

Claim 27 recites a wet treatment nozzle comprising, *inter alia*, a pressure controller that maintains a difference between a pressure of the treatment liquid in contact with the object to be treated and an atmospheric pressure, so that the treatment liquid in contact with the object does not flow to the outside of the exhaust passage after wet treatment.

Schulze fails to teach or suggest a pressure controller that maintains a difference between a pressure of the treatment liquid in contact with the object to be treated and an atmospheric pressure, so that the treatment liquid in contact with the object does not flow to the outside of the exhaust passage after wet treatment. In fact, Schulze teaches a sealing strip. "The essential feature of the apparatus for carrying out the method of the invention resides in that the rim of the sound transducer is surrounded by a sealing strip, which blocks the passage of liquid toward the outside and permits of the entrance of air from the outside below the strip." (col. 2; lines 42 – 47). Schulze has no need for a pressure controller that maintains a difference between a pressure of the treatment liquid in contact with the object to be treated and an atmospheric pressure, so that the treatment liquid in contact with the object does not flow to the outside of the exhaust

passage after wet treatment. Schulze uses a sealing strip to prevent the flow of liquid outside the compartment.

Lemelson fails to teach a pressure controller that is operable to maintain a difference between a pressure of the treatment liquid in contact with the object to be treated and an atmospheric pressure. Lemelson provides no teaching or suggestion that the inlet and exhaust control means is operable to maintain a pressure difference. In contrast, Lemelson teaches that the control means is used as a timer or positioning unit. More specifically, Lemelson teaches:

The inlet and exhaust control means or valves used for controlling the admission and removal of fluid from the volume 14 as well as the operation of pumps, motors, filtering servos and the like may, in one form of the invention, be under the control of an automatic control means such as a multi-circuit timer or other programming device or system such as a tape or card operated controller or computer which may also control means for positioning the tool relative to the work in sequence with the operation of the transducer and fluid controls.

In other words, Lemelson teaches controlling the admission and removal of fluid from the volume based on a timer or desired position. One skilled in the art would understand that maintaining a pressure is different than controlling a pump for a controlled period of time. Lemelson fails to provide any teaching that the control means is used to maintain a pressure so that the treatment liquid in contact with the object does not flow to the outside of the exhaust passage after wet treatment. In fact, Lemelson teaches that the device 10 may be handheld (col. 2; lines 63 – 65). Lemelson teaches “[t]he forward end 12’ of housing 12 has an opening 13 therein which is aligned with the transducer 16a for the passage of ultrasonic vibrations therethrough when abutting the work-piece W as illustrated” (col. 3; lines 11 – 14). The user applies a force to the device 10 such that annular volume 14 is enclosed. One skilled in the art would understand that the user may insure that treatment liquid does not flow outside the

exhaust passage by applying a greater pressure to the back of the device 10, which increases the pressure between the device and the treatment surface.

The cited references fail to disclose or suggest a pressure controller that maintains a difference between a pressure of the treatment liquid in contact with the object to be treated and an atmospheric pressure, so that the treatment liquid in contact with the object does not flow to the outside of the exhaust passage after wet treatment. Therefore, claim 27 is allowable over the cited reference for at least this reason.

Claim 27 is also allowable for reasons that are independent of those discussed above. Claim 27 recites, *inter alia*, a weight provided on the housing that minimizes propagation of energy from the ultrasonic transducer to a wall of the housing by shifting the characteristic frequency of the wall of the housing.

As suggested by the Examiner, Shulze and Lemelson fail to disclose or suggest a weight (Office Action March 12, 2007; page 3).

Eppes fails to disclose or suggest a weight. Eppes teaches a contrary arrangement. Eppes teaches hold-down clamps 14. "Housing 10 is secured to wall 13 by a plurality of hold-down clamps 14 which engage a flange on the housing. The housing functions as a stabilizing mass that provides vibrational damping" (col. 2, lines 15 – 18). One skilled in the art would understand that a weight and a hold-down clamp 14 are different elements. In addition, the housing provides vibrational damping, not the hold-down clamps 14.

Baird fail to disclose or suggest a weight that minimizes propagation of energy from the ultrasonic transducer to a wall of the housing by shifting the characteristic frequency of the wall of the housing. Baird teach a contrary arrangement. Baird teach the use of a plates 16 and 17. The plates 16 and 17 are not provided on the housing, rather they are provided on the transducer 15. "Plates 16 and 17 act to load the piezoelectric transducer 15 and therefore function to reduce the inherent natural

frequency thereof to a degree causing it to resonate within a frequency range applicable to liquid level measurement" (col. 4, lines 45 – 49). In other words, Baird teach that the plates 16 and 17 directly effect the frequency range of the transducer 15. As shown in Figure 2, the plates 16 and 17 are connected directly to the transducer 15. The plates 16 and 17 do not minimize the propagation of energy to the wall.

The cited references fail to disclose a weight that minimizes propagation of energy from the ultrasonic transducer to a wall of the housing by shifting the characteristic frequency of the wall of the housing. Therefore, claim 27 is allowable over the cited references.

The Examiner stated that it "would have been obvious to one having ordinary skill in the art to modify the ultrasonic cleaner in either Lemelson or Schulze, to include a weight as taught by either Baird [or] Eppes" (Office Action dated March 12, 2007; page 3). Applicant respectfully disagrees.

Eppes teaches hold-down clamps 14. The hold-down clamps 14 are used to secure the housing 10 to a wall 13. As discussed above, the hold-down clamps 14 are not weights. However, even under the Examiner's interpretation, there is no suggestion that the hold-down clamps are advantageous over the means for securing the housing to the wall 13 in either Lemelson or Schulze. Therefore, a prima facie case of obviousness has not been established because there is no suggestion or motivation to combine Eppes with Lemelson or Schulze.

Baird teaches plates 16 and 17 directly connected to the transducer 15. There is no motivation or suggestion to combine Baird with either Lemelson or Schulze. In fact, adding additional plates 16 and 17 to the teachings of Lemelson would render it unsatisfactory for its intended purpose. For example, one skilled in the art would understand that adding additional plates 16 and 17 to a hand-held device 10 would render the hand-held device unsatisfactory for its intended purpose.

Dependent claims 16, 17, 19, 28, 29, and 30 depend from allowable claim 27, so are allowable for at least the same reasons. Further limitations of the dependent claims are allowable over the cited references.

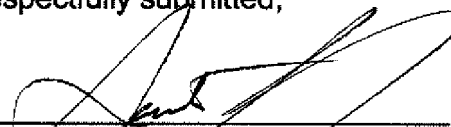
The Examiner states that claims 16 – 19 are mere rearrangements or changes in size of the cited references. Applicant respectfully disagrees. To be a rearrangement or obvious change in size, the cited references must teach each element – either in a different location or of a different size. The cited references do not teach each and every element recited in claims 16 - 19. The Examiner has not shown that each element recited in claims 16 – 19 is taught in the cited references. In addition, moving a weight, as suggested by the Examiner, from a transducer to a housing is not a mere rearrangement.

New claim 32 was added. Claim 32 is dependent on allowable claim 27, so is allowable for at least this reason. Claim 32 recites a ring-shaped weight. The cited references fail to disclose or suggest a ring-shaped weight.

CONCLUSION

Applicants respectfully submit that all of the pending claims are in condition for allowance and seek an early allowance thereof. If for any reason the Examiner is unable to allow the application in the next Office Action and believes that a telephone interview would be helpful to resolve any remaining issues, he is respectfully requested to contact the undersigned.

Respectfully submitted,



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